

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-11. (Canceled).

12. (Original) A chemical imaging system comprising a near infrared imaging detection system and a visible imagery system.

13. (Original) The chemical imaging system of claim 12 wherein said near infrared imaging detection system comprises:

- a) an illumination source for illuminating an area of a sample using light in the near infrared radiation wavelength;
- b) a device for collecting a spectrum of near infrared wavelength radiation light transmitted, reflected, emitted or scattered from said illuminated area of said sample and producing a collimated beam therefrom;
- c) a near infrared imaging spectrometer for selecting a near infrared radiation image of said collimated beam; and
- d) detector for collecting said filtered near infrared images.
- e) an algorithm for processing the near infrared and visible image data.

14. (Original) The chemical imaging system of claim 12 wherein said visible imagery system comprises:

a) an illumination source for illuminating an area of said sample using light in the visible wavelength; and

b) a device for detecting said visible wavelength light from said illuminated area of said sample.

15.-20 (Canceled).

21. (Previously presented) The chemical imaging system of claim 14, wherein said visible imagery system comprises a microscope.

22. (Previously Presented) The chemical imaging system of claim 14, wherein said visible imagery system comprises a macroscope.

23. (New Claim) A method for producing a volumetric image of a sample comprising the steps of:

A) providing a near infrared imaging detection system and a visible imagery system, wherein said near infrared imaging detection system comprises:

i) an illumination source for illuminating an area of a sample using light in the near infrared radiation wavelength;

- ii) a device for collecting a spectrum of near infrared wavelength radiation light transmitted, reflected, emitted or scattered from said illuminated area of said sample and producing a collimated beam therefrom;
  - iii) a near infrared imaging spectrometer for selecting a near infrared radiation image of said collimated beam; and
  - iv) detector for collecting said filtered near infrared images;
  - v) an algorithm for processing the near infrared and visible image data;
- B) moving said sample relative to an objective;
  - C) collecting images of said sample relative to said objective in a plurality of focus depths; and
  - D) processing said collected images to reconstruct an image of said sample.

24. (New Claim) A method for producing a volumetric image of a sample comprising the steps of:

- A) illuminating an area of a sample using light in the near infrared radiation wavelength and the visible radiation wavelength so as to yield a near infrared wavelength image and a visible wavelength image of said sample;
- B) collecting a spectrum of near infrared wavelength radiation light transmitted, reflected, emitted or scattered from said illuminated area of said sample and producing a collimated beam therefrom;

- C) selecting a near infrared radiation image of said collimated beam with a near infrared imaging spectrometer;
- D) collecting said filtered near infrared images;
- E) processing the near infrared and visible image data;
- F) moving said sample relative to an objective;
- G) collecting images of said sample relative to said objective in a plurality of focus depths; and
- H) processing said collected images to reconstruct an image of said sample.

25. (New Claim) A chemical imaging system comprising a near infrared imaging detection system and a visible imagery system wherein said near infrared imaging detection system comprises:

- a) an illumination source for illuminating an area of a sample using light in the near infrared radiation wavelength;
- b) a device for collecting a spectrum of near infrared wavelength radiation light transmitted, reflected, emitted or scattered from said illuminated area of said sample and producing a collimated beam therefrom;
- c) a near infrared imaging spectrometer for selecting a near infrared radiation image of said collimated beam; and
- d) detector for collecting said filtered near infrared images.
- e) an algorithm for processing the near infrared and visible image data; and

said visible imagery system comprises a macroscope.

26. (New Claim) A chemical imaging system comprising a near infrared imaging detection system and visible imagery system wherein said near infrared imaging detection system comprises:

- a) an illumination source for illuminating an area of a sample using light in the near infrared radiation wavelength;
- b) a device for collecting a spectrum of near infrared wavelength radiation light transmitted, reflected, emitted or scattered from said illuminated area of said sample and producing a collimated beam therefrom;
- c) a near infrared imaging spectrometer for selecting a near infrared radiation image of said collimated beam; and
- d) detector for collecting said filtered near infrared images.
- e) an algorithm for processing the near infrared and visible image data; and

said visible imagery system comprises a microscope.